

REMARKS

Claims 31-34, 36, 37, 39, 48-56, and 65-67 are pending. Claim 31 has been amended, claims 1-30, 35, 38, 40-47, and 57-64 have been canceled, and new claims 65-67 have been added to recite additional features of the invention.

Reconsideration of the application is respectfully requested for the following reasons.

At the outset, Applicants wish to thank the Examiner for graciously extending Applicants' representative an interview on March 16, 2006. During the interview, the differences between the invention and the cited references were discussed. Specifically, in comparing the claims to the newly cited § 102 references, it was noted that the Examiner appears to have interpreted the phrase "distributed among" to mean - between - the first and second layers. However, in Applicants' invention, a portion of the signal wires in the "first set" and another portion of the signal wires in the "first set" are located in different layers. The same is true of the second set, i.e., a portion of the signal wires in the "second set" and another portion of the signal wires in the "second set" are located in different layers.

These features are shown, for example, in Figure 5A of Applicants' drawings, where the first set of signal wires is shown by reference numeral 520 and the second set of signal wires is shown by reference numeral 530. As shown, some of the signal wires (521, 523, and 525) in the first set are in a first layer and other signal wires (522, 524, 526) in the first set are in a second layer. Similarly, some of the signal wires (531 and 533) in the second set are in the first layer and other signal wires (532 and 534) in the second set are in the second layer. As acknowledged by the Examiner during the interview, the cited references do not disclose a device having this specific structure.

The Thompson patent, for example, shows a first set of signal wires 220 and a second set of signal wires 230. (See Figure 3B). Unlike the invention, all of the signal wires in the first set are located in a same layer. The same is true of the second set, i.e., all of the signal wires in the second set are located in a same layer. The Thompson patent, therefore, does not disclose the structure of the invention.

The Howard patent is similar to the Thompson patent. As shown in Figure 8, the Howard device includes a first set of signal wires (128, 30, 132, 134) and a second set of signal wires (140 and 142). All of the signal wires in the first set are in a same layer and all of the signal wires in the second set are in a same layer. Thus, the Howard patent also fails to disclose the structure of the invention.

Figures 1 and 2 of Applicants' drawings show a first set of signal wires 220 and a second set of signal wires 230. However, all of the signal wires in the first and second sets are located in a same layer. Thus, Figures 1 and 2 of Applicants' drawings fail to disclose the structure of the invention.

To emphasize these differences between the invention and the cited references, claim 31 has been amended to recite that the first set of signal wires includes "a first plurality of signal wires distributed in a first layer and a second plurality of signal wires distributed in a second adjacent layer." An additional amendment was then made to recite that the second set of signal wires includes "a third plurality of signals wires distributed in the first layer and a fourth plurality of signal wires distributed in the second layer." Applicants respectfully submit that these amendments are sufficient to render claim 31 and its dependent claims allowable over the cited references, whether taken alone or in combination.

Applicants further submit that the amendments presented in this paper raise no new issues requiring further searching or consideration by the Examiner, as the distinguishing features discussed above have already been emphasized in previous responses from Applicants. Further, Applicants note that the number of new claims added in this paper do not exceed the number of claims that have been canceled in this paper. It is therefore respectfully submitted that entry of this paper is proper.

Regarding the new claims, Applicants note that new claim 65 cites that “the first layer is formed over the second layer.” These features are not taught or suggested by the references of record. For example, Thompson and Howard disclose a first set of signal wires all in a same layer and a second set of signal wires all in a same layer. These patents do not disclose that one portion (“a first plurality”) of signal wires in the first set are in a first layer and another portion (“a second plurality”) of signal wires in the first set are in another layer as required by claim 31.

These patents also do not disclose that one portion (“a third plurality”) of signal wires in the second set are in the first layer and another portion (“a fourth plurality”) of signal wires in the second set are in the second layer.

Moreover, Thompson and Howard fail to disclose that, in a structure as defined in claim 31, the first layer is formed over the second layer as indicated in claim 65. Figures 1 and 2 of Applicants’ drawings are also deficient in this respect, as these drawings show that all the signal wires in the first and second sets are located in a same layer.

Claim 66 recites that the signal lines in the first and second sets are oriented in a same direction. These features are not taught or suggested by the cited references. For example, Thompson and Howard show that the signal lines in the first set and the signal

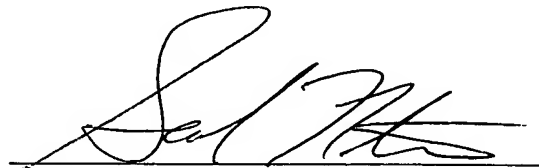
lines in the second set are perpendicular to one another and therefore are not "oriented in a same direction" as recited in claim 66. Figures 1 and 2 of Applicants' drawings are all oriented in a same direction, but these signal lines are located in a same layer and therefore fail to meet the features in base claim 31.

Claim 67 recites that "the signal lines in the first and second sets are parallel to one another." Based on the differences discussed above, it is apparent that the cited references do not disclose these features.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Withdrawal of the rejections in the Final Office Action and furtherance of the application to allowance is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR § 1.136. Please charge any shortage in fees due in connection with this application to Deposit Account No. 16-0607 and credit any excess fees to the same Deposit Account.

Respectfully submitted,



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